

WHAT IS CLAIMED IS:

1 1. A system for facilitating the alignment of a
2 hitching mechanism located on a vehicle with a mating
3 hitching mechanism located on an object to be
4 removably connected to the vehicle, said system
5 comprising:

6 a target area located on the object to be
7 removably connected to the vehicle, said target area
8 facing the vehicle when the object to be removably
9 connected to the vehicle is in position for connection
10 to the vehicle;

11 a video camera for installation in a fixed
12 position on the vehicle, said video camera being
13 oriented toward said target area on the object to be
14 removably connected to the vehicle when the object to
15 be removably connected to the vehicle is in position
16 for connection to the vehicle; and

17 a video monitor for placement in the passenger
18 compartment of said vehicle in a position in which it
19 may be viewed by a driver of the vehicle, said video
20 monitor for displaying thereon an image viewed by said
21 video camera.

1 2. A system as defined in Claim 1, wherein said
2 target area comprises:

3 a surface located on the object to be removably
4 connected to the vehicle, said surface facing said
5 vehicle when the object to be removably connected to
6 the vehicle is in position for connection to the
7 vehicle; and

8 an alignment indicia located on said surface in a
9 position in which said alignment indicia will be at
10 the center of said image when the object to be
11 removably connected to the vehicle is in position for
12 connection to the vehicle.

1 3. A system as defined in Claim 2, wherein said
2 alignment indicia comprises:

3 at least two intersecting lines, the intersection
4 between said at least two intersecting lines being at
5 the center of said image when the object to be
6 removably connected to the vehicle is in position for
7 connection to the vehicle.

1 4. A system as defined in Claim 2, wherein said
2 alignment indicia is of a color which offers a high
3 degree of contrast with a color of said surface
4 located on the object to be removably connected to the
5 vehicle.

1 5. A system as defined in Claim 2, wherein said
2 surface is located on the object to be removably
3 connected to the vehicle in a position which will be
4 near to said video camera when the object to be
5 removably connected to the vehicle is in position for
6 connection to the vehicle.

1 6. A system as defined in Claim 1, wherein said
2 video camera is hermetically sealed to protect it from
3 the elements.

1 7. A system as defined in Claim 1, additionally
2 comprising:

3 a wiring harness, said wiring harness connecting
4 said video camera to said video monitor, said wiring
5 harness also connecting both said video camera and
6 said video monitor to a source of power.

1 8. A system as defined in Claim 1, wherein said
2 video camera comprises:

3 a wireless transmitter for transmitting video
4 signals;

5 and wherein said video monitor comprises:

6 a wireless receiver for receiving said video
7 signals from said wireless transmitter.

1 9. A system as defined in Claim 8, wherein said
2 video monitor additionally comprises:

3 a wireless transmitter for sending a signal to
4 turn on said video camera;

5 and wherein said video camera additionally comprises:

6 a wireless receiver for receiving said signal to
7 turn on said video camera.

1 10. A system as defined in Claim 8, wherein said
2 video camera additionally comprises:

3 a battery for supplying power to said video
4 camera.

1 11. A system as defined in Claim 1, wherein said
2 video monitor is mounted on or in a dash located in
3 said passenger compartment of said vehicle.

1 12. A system as defined in Claim 1, wherein said
2 video monitor comprises either a CRT display or an LCD
3 video display.

1 13. A system as defined in Claim 1, wherein the
2 hitching mechanism located on the vehicle is mounted
3 at the front of the vehicle, and wherein the object to
4 be removably connected to the vehicle comprises:
5 an implement.

1 14. A system as defined in Claim 13, wherein said
2 implement comprises:

3 a snow plow.

1 15. A system as defined in Claim 1, wherein the
2 hitching mechanism located on the vehicle comprises:

3 a hitch frame nose piece that is mounted at the
4 front of the vehicle;
5 and wherein the object to be removably connected to
6 the vehicle comprises:

7 a snow plow, wherein said target area is located
8 on said snow plow.

1 16. A system as defined in Claim 15, wherein said
2 video camera is mounted on said hitch frame nose
3 piece.

1 17. A system as defined in Claim 15, wherein said
2 target area is located on the hitching mechanism on
3 said snow plow.

1 18. A system as defined in Claim 1, wherein the
2 hitching mechanism located on the vehicle comprises:

3 a trailer hitch which is mounted at the rear of
4 the vehicle;
5 wherein the object to be removably connected to the
6 vehicle comprises:

7 a trailer, wherein said target area is located on
8 said trailer.

1 19. A system as defined in Claim 18, wherein said
2 video camera is mounted close adjacent to said trailer
3 hitch.

1 20. A system as defined in Claim 19, wherein said
2 hitching mechanism on said trailer is located at the
3 front end thereof, and wherein said target area is
4 located near the front end of the trailer relatively
5 close to the hitching mechanism at the front thereof.

1 21. A system as defined in Claim 1, additionally
2 comprising:

3 a sensor for sensing the distance between the
4 object to be removably connected to the vehicle and
5 the vehicle;
6 wherein the distance between the object to be
7 removably connected to the vehicle and the vehicle is
8 displayed on said video monitor.

1 22. A system as defined in Claim 21, wherein said
2 distance sensor comprises:

3 a transmitter of a communication wave; and
4 a receiver of reflections of said transmitted
5 wave.

1 23. A system as defined in Claim 22, wherein said
2 communications medium is infrared waves.

1 24. A system as defined in Claim 22, wherein said
2 communications medium is ultrasonic radio frequency
3 (RF) waves.

1 25. A system as defined in Claim 1, wherein said
2 video camera is mounted on the vehicle.

1 26. A system for facilitating the alignment of a
2 hitching mechanism located on a vehicle with a mating
3 hitching mechanism located on an object to be
4 removably connected to the vehicle, said system
5 comprising:

6 a video camera for installation in a fixed
7 position on one of the vehicle and the object to be
8 removably connected to the vehicle;

9 a target area located on the other of the vehicle
10 and the object to be removably connected to the
11 vehicle, said target area facing one of the vehicle
12 and the object to be removably connected to the
13 vehicle when the object to be removably connected to
14 the vehicle is in position for connection to the

15 vehicle, said video camera being oriented toward said
16 target area on the other of the vehicle and the object
17 to be removably connected to the vehicle when the
18 object to be removably connected to the vehicle is in
19 position for connection to the vehicle; and
20 a video monitor for placement in the passenger
21 compartment of said vehicle in a position in which it
22 may be viewed by a driver of the vehicle, said video
23 monitor for displaying thereon an image viewed by said
24 video camera.

1 27. A system for facilitating the alignment of a
2 hitching mechanism located on a vehicle with a mating
3 hitching mechanism located on an object to be
4 removably connected to the vehicle, said system
5 comprising:

6 a target area located on the object to be
7 removably connected to the vehicle, said target area
8 facing the vehicle when the object to be removably
9 connected to the vehicle is in position for connection
10 to the vehicle, said target area having an alignment
11 indicia located thereupon;

12 a video camera for installation in a fixed
13 position on the vehicle, said video camera being
14 oriented directly toward said alignment indicia on
15 said target area on the object to be removably
16 connected to the vehicle when the object is in
17 position for connection to the vehicle; and

18 a video monitor for mounting in the passenger
19 compartment of said vehicle in a position in which it
20 may be viewed by a driver of the vehicle, said video
21 monitor for displaying thereon an image viewed by said
22 video camera.

1 28. A system for facilitating the alignment of a
2 vehicle with an object to be removably connected to
3 the vehicle, said system comprising:

4 a target area located on the object to be
5 removably connected to the vehicle;
6 a camera for installation in a fixed position on
7 the vehicle, said camera being oriented toward said
8 target area when the object to be removably connected
9 to the vehicle is in position for connection to the
10 vehicle; and
11 a monitor for placement in the passenger
12 compartment of said vehicle in a position in which it
13 may be viewed by a driver of the vehicle, said monitor
14 for displaying thereon an image viewed by said camera.

1 29. A method of facilitating the alignment of a
2 hitching mechanism located on a vehicle with a mating
3 hitching mechanism located on an object to be
4 removably connected to the vehicle, said method
5 comprising:

6 providing a target area on the object to be
7 removably connected to the vehicle, said target area
8 facing the vehicle when the object to be removably
9 connected to the vehicle is in position for connection
10 to the vehicle;

11 installing a video camera in a fixed position on
12 the vehicle, said video camera being oriented toward
13 said target area on the object to be removably
14 connected to the vehicle when the object is in
15 position for connection to the vehicle; and

16 displaying an image viewed by said video camera
17 on a video monitor located in the passenger
18 compartment of said vehicle in a position in which it
19 may be viewed by a driver of the vehicle.